ARISTOLOCHIACEAE OF KENTUCKY *

Clyde F. Reed**

The species of the Aristolochiaceae in Kentucky fall into two complexes, which are designated by Fernald (1950, p. 562) as Asarum and Aristolochia. Blomquist (1957, p. 260) pointed out the anatomical differences between Asarum and Hexastylis and monographed the genus Hexastylis. Huber (1960, p. 549-550) distinguished Aristolochia, Isotrema and Endodeca. Based on these two taxonomic treatments, there are four genera of the Aristolochiaceae in the flora of Kentucky: Asarum, Hexastylis, Isotrema and Endodeca.

Key to the genera of Aristolochiaceae in Kentucky

1. Stemless herbs, with creeping rhizomes; stamens 12.
   2. Leaves pubescent, membranous, persisting only one season, a single pair terminating branches of the superficial rhizome, broadly reniform; calyces hairy on the outside; lobes of calyces more or less attenuated; stamens with long filaments, the anther-connective extending in a long, pointed appendage; styles united except at the apex, the stigmas terminal on the spreading lobes; ovaries wholly inferior... .....4. Asarum.
   2. Leaves essentially glabrous, coriaceous, persisting more than one season, usually a single leaf produced each year, cordate to reniform to deltoid; calyces glabrous on the outside; lobes of calyces not attenuated; stamens with very short filaments or the anthers sessile, the anther-connective at most extending in a short blunt appendage; styles separate, extending above the extrorse stigmas; ovaries superior or partly inferior.....3. Hexastylis.
1. Caulescent herbs, or twining shrubs; stamens 6.
   2. Plants vines, meters long, climbing into trees; the perianth 3-parted, the tube U-shaped, the unpaired limb-segment on the convex side without an utriculus; gynostemium thick, fleshy to cartilaginous with 6 anthers situated in twos on the back of the three gynostemial protuberances; fruit a septicidal capsule, opening from the base, vase-shaped.. .....1. Isotrema.
   2. Plants caulescent herbs; perianth 3-parted, the tube U-shaped, the unpaired limb-segment on the convex side with a dis-

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tinct utriculus; gynostemium thin, membranous, cup-shaped, 6 anthers, situated in twos on the back of the three gynostemial protuberances; fruit a septicidal capsule, opening from the tip, globular.....2. Endodeca.

1. ISOTREMA Raf., Journ. de Phys. Paris, 89: 102. 1819; H.Huber, München Bot. Staatssaml. Mitt., 3: 549-550. 1960 (Nov.).

Syn.: Siphisia Raf., Med. Flora, 1: 62. 1828; Hocquartia Dumortier, Comment. Bot., p. 30. 1822; Aristolochia L. sect Siphisia (Raf.) Duchartre, Ann. Sci. Nat., IV, 2: 29. 1854; Aristolochia L. sect. Hexodon Duchartre, Ann. Sci. Nat., IV, 2: 29. 1854.

Perianth three-parted; the tube U-shaped. the unpaired limb-segment on the convex side, without an utriculus, the middle tube part not narrowed downward; the perianth-tube completely glabrous on the inside or only in the lower part with thin tufted connected cob-webby hairs; climbing hairs absent or situated between the cob-webby hairs; limb three-parted, all the segments of the same kind or the unpaired segment raised and the paired segments fused half-way to each other; gynostemium thick, fleshy to cartilaginous with 6 anthers, which are situated in twos on the back of the gynostemial protuberances; fruit a septicidal capsule opening from the base, vase-shaped; raphe coming loose as a ring on the seed; secretory cells entirely absent in the epidermis of the foliage leaves or are limited to the food cells of the hairs; the hairs on the vegetative parts of the plant instead of the climbing hairs are longer hairs with short bases and small-celled shaft, these cells corresponding to the climbing hairs; chromosomes, 2n = 28.

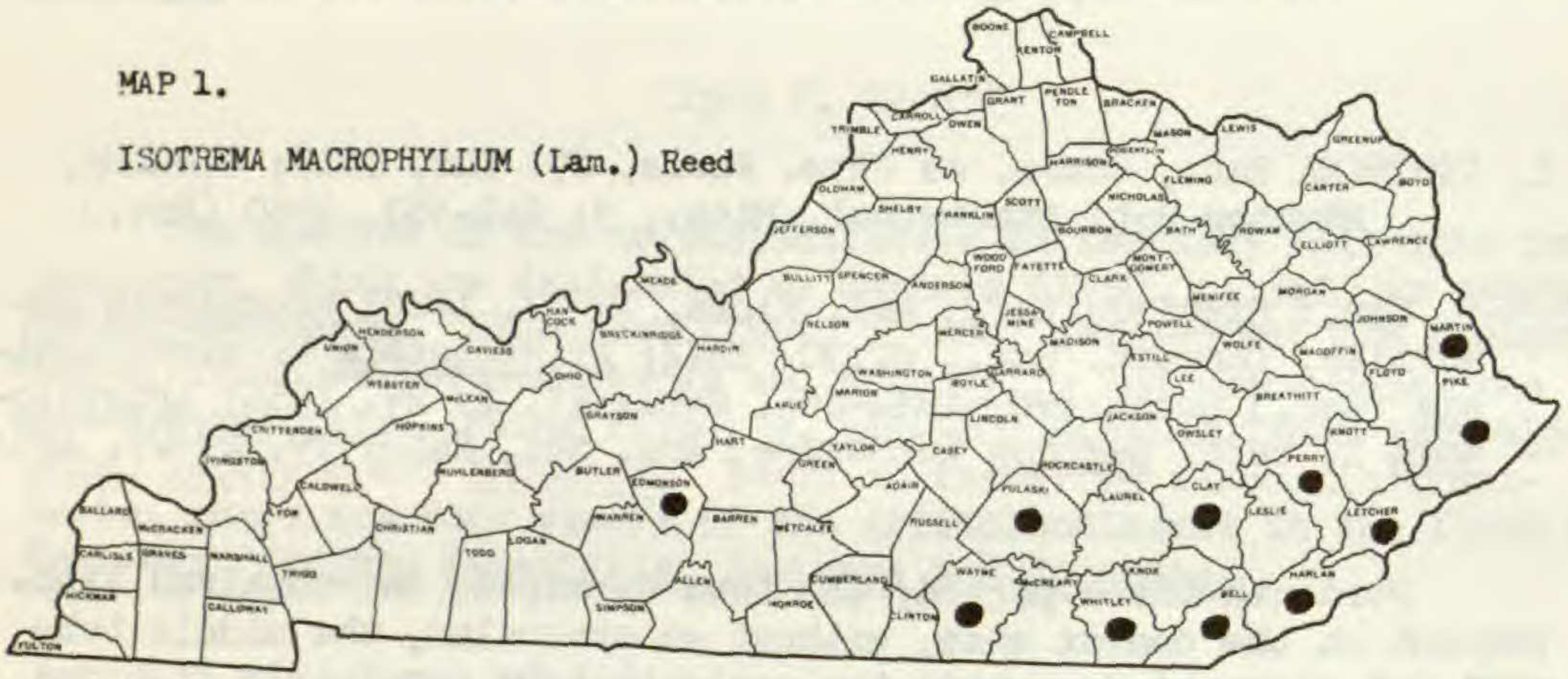
1a. ISOTREMA MACROPHYLLUM (Lam.) Reed, comb. nov. Map 1.

Syn.: Aristolochia macrophylla Lamarck, Encycl. 1: 252. 1783; Pfeifer, Baileya, 10: 4-7. 1962; Aristolochia durior Hill (Syst. Veg. 16: 57, t. 60. 1770), of most Amer. Auth., see Pfeifer, Baileya, 10: 4-7. 1962 for rejection of this name; Aristolochia sipho L'Heritier, Stirp. Nov., p. 13. 1785; Aristolochia frutescens Marshall, Arbust. Americ., p. 12. 1785; Isotrema durius (Hill) H.Huber, München Bot. Staatssamml. Mitt., 3: 550. 1960.

Since Pfeifer (1962, pp. 4-7) has pointed out that, "Since the work of the redoubtable Hill is conclusively a representative of neither A. macrophyllum nor A. tomentosum, nor any other species native to North America for that matter, it is recommended that the name be dropped as an epithet referable to the Aristolochiaceae", it becomes necassary to transfer Aristolochia macrophylla to Isotrema.

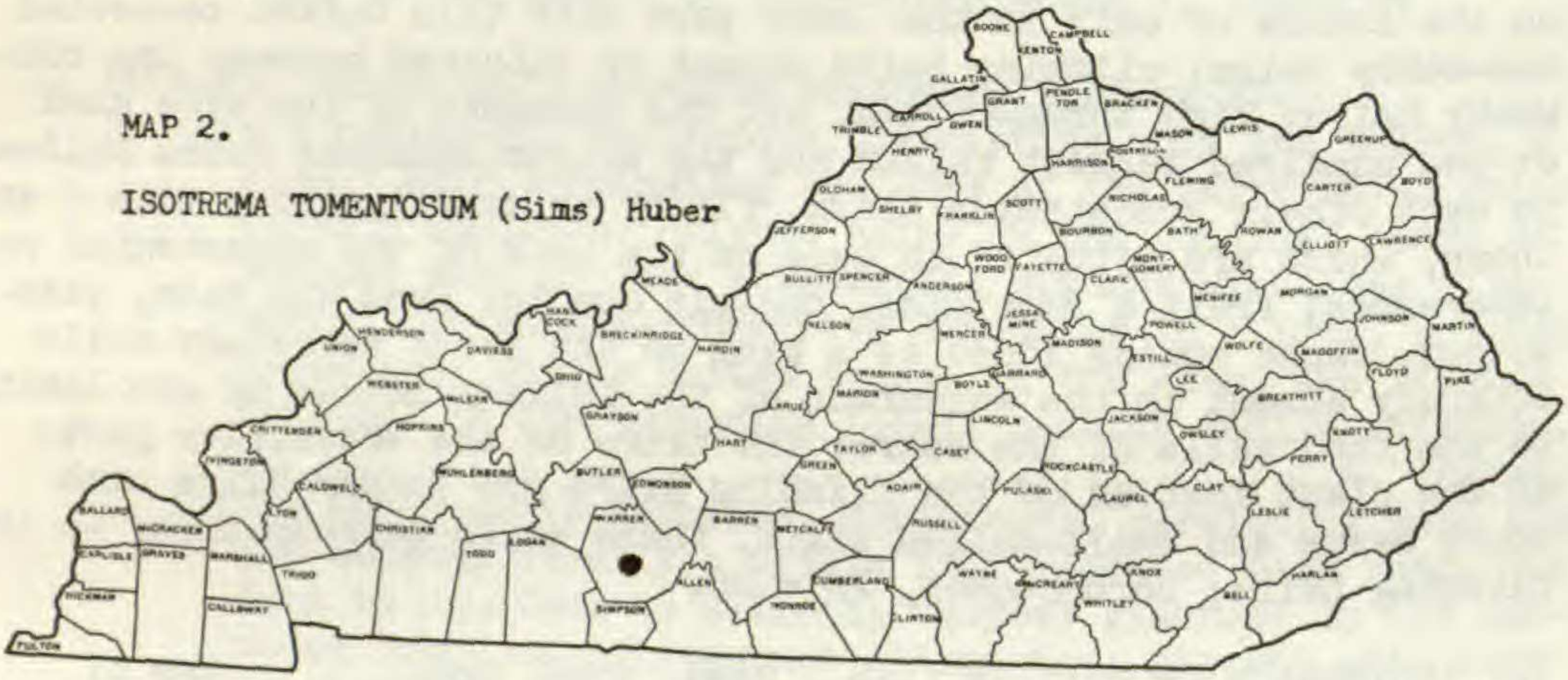
MAP 1.

ISOTREMA MACROPHYLLUM (Lam.) Reed



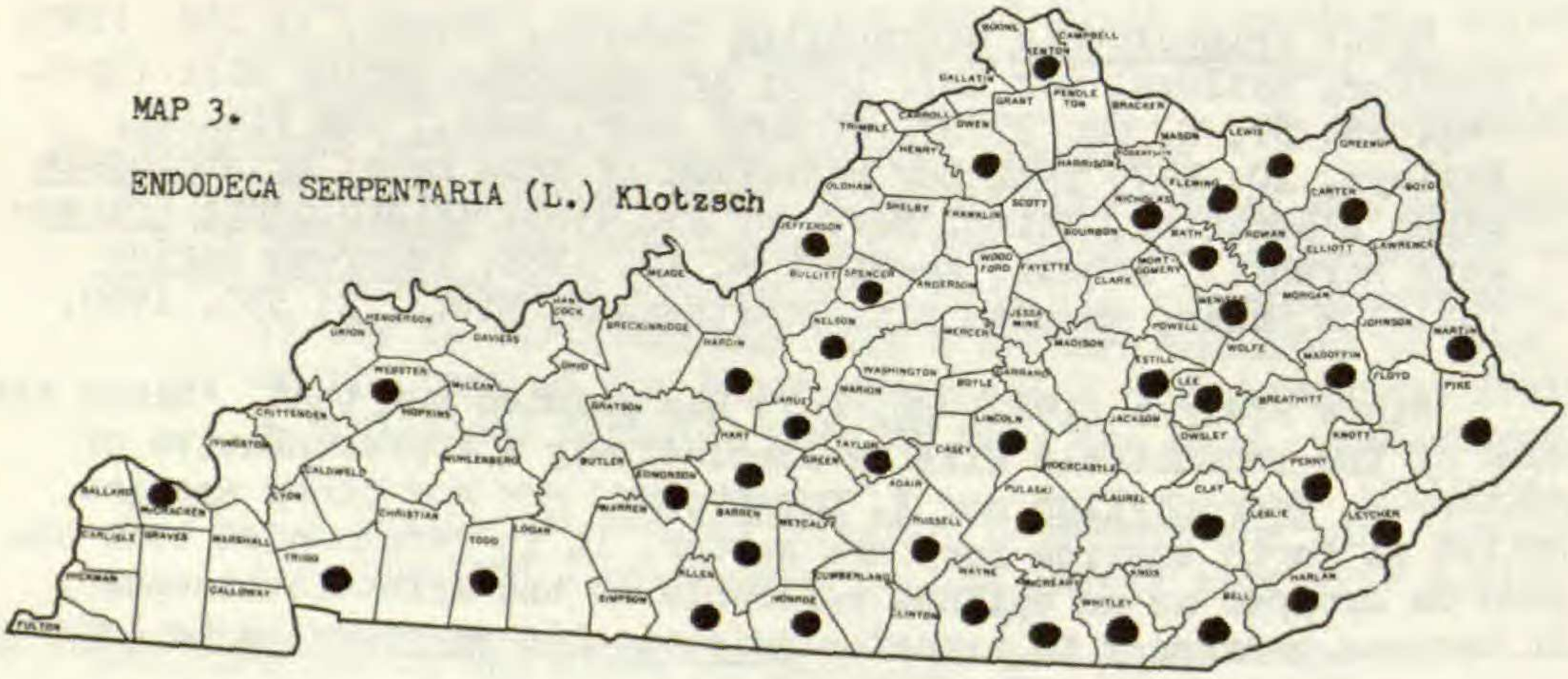
MAP 2.

ISOTREMA TOMENTOSUM (Sims) Huber



MAP 3.

ENDODECA SERPENTARIA (L.) Klotzsch



A high-twining shrubby vine, nearly glabrous; leaves cordate-ovate to cordate-reniform, abruptly pointed, up to 4 dm. across; flowers axillary, with a clasping leaf-like bract, borne along the stems; calyx up to 3 cm. long, strongly curved like a Dutch pipe, brown-purple, contracted at the mouth, with abrupt flat obscurely 3-lobed limb; capsule cylindric-ovoid, 5-8 cm. long, about 2.5 cm. in diameter, firm, the valves separating only in age, pendant on peduncles up to 20 cm. long.

The Dutchman's Pipe or Pipe-vine grows in rich woods in the mountainous areas from western Maryland, southwestern Pennsylvania and West Virginia, south in the mountains to North Carolina, Georgia and Alabama, and westward into Ohio, Kentucky and Tennessee; also it is much cultivated northward and eastward into New England and New Jersey for shade on porches. In Kentucky this species is found mainly in the southeastern portion of the state, along Black Mt. and the Cumberlands, west at least as far as Mammoth Cave in Edmonson County.

Representative specimens from Kentucky: Bell Co.: Pine Mt. Sept. 1893. T.H.Kearney, Jr. 591. (US-796881); along Cumberland River. Sept. 1893. T.H.Kearney, Jr. 591. (US-18250 and 18251); Edmonson Co.: Nolin River, deep alluvium on river bank, Mammoth Cave Nat. Park. Oct. 2, 1949. Henry W. Lix 660. (US-2030592); Letcher Co.: 4 mi. E of Whitesburg. Sept. 13, 1941. F.T.McFarland 60. (US-1874138); 5 mi. E of Whitesburg on way to Jenkins. May 19, 1940. F.T.McFarland 4527. (US-1929160); Perry Co.: 5 mi. E of Hazard. Sept. 27, 1940. F.T.McFarland & H.J.Rogers 4665. (US-1862712); Wayne Co.: Beaver Creek, SW of Monticello. July 12-14, 1937. L.B.Smith & A.R.Hodgdon 3927. (US-1725789); Pike Co.: On Poplar Creek near Majestic, Rt. 194. June 14, 1962. Clyde F. Reed; Martin Co.: Introduced in woods at Lovely by Rufus Reed. Aug. 9, 1965. Clyde F. Reed. Braun (1943, p. 50) lists this species from Bell, Clay, Harlan, Letcher, Pulaski and Whitley Counties.

1b. ISOTREMA TOMENTOSA (Sims) H.Huber, München Bót. Staatssamml. Mitt., 3: 550. 1960. Map 2.

Syn.: Aristolochia tomentosa Sims, Bot. Mag., 33: t. 1369. 1811; Fernald, Manual of Botany, 8th ed., p. 565. 1950.

A high-twining shrubby vine, in which the young branches, lower surfaces of the leaves and the flowers are densely white-pubescent; leaves ovate to round-reniform, blunt, the blades on the fertile branches up to 1.5 cm. long; peduncles of the flowers downy, but bractless; calyx yellowish, with an oblique dark purple orifice and a rugose reflexed limb; capsules about 3 cm. in diameter.

The Downy Dutchman's Pipe ranges from Florida and eastern Texas, north to North Carolina, southwestern Indiana, southern Illinois, Missouri and southeastern Kansas; and naturalized locally to western New York. In Kentucky it is known from a single collection.

Representative specimen from Kentucky: Warren Co.: On river bluff, Bowling Green. May 23, 1900. Sadie F. Price. (US-966268).

2. ENDODECA Raf., Medic. Flora, 2: 62. 1828;
emend. Klotzsch, Monatsber. Akad. Berlin, 1859: 600. 1859;
H.Huber, Minchen, Bot. Staatssamml. Mitt., 3: 549. 1960.

Syn.: Aristolochia sect. Asterolytes Duchartres, Ann. Sci. Nat., IV, 2: 29. 1854; De Candolle, Prodr. 15(1): 433. 1864.

Perianth three-parted; the tube U-shaped, the unpaired limb-segment on the convex side with a distinct utriculus; the inside of the utriculus with thin tufted connected cob-webby hairs, the upper tube glabrous on the inside except on the convex side of the middle portion; climbing hairs on the inside of the tube present, in the utriculus and on the convex side of the upper tube; limb three-parted, the unpaired segment somewhat raised, the paired segments plainly fused with one another; gynostemium thin-membranous, cup-shaped with 6 anthers, situated in twos on the back of the three gynostemial protuberances; fruit a septicidal capsule opening from the tip, globular; secretory cells entirely absent in the epidermis of the foliage leaves; hairs in the vegetative parts instead of the climbing hairs, there are longer hairs with short bases and small-celled shafts, these cells corresponding to the climbing cells; chromosomes, 2n = 28.

2a. ENDODECA SERPENTARIA (L.) Klotzsch, Monatsber. Akad. Berlin, 1859: 600. 1859; H.Huber, München Bot. Staatssamml. Mitt., 3: 551. 1960. Map 3.

Syn.: Aristolochia serpentaria L., Sp. Pl., p. 961. 1753.

Herb, 1-4.5 dm. tall, with slender, erect stems and a knotty rhizome; leaves ovate to ovate-oblong, cordate at the base, acuminate, slender-petioled, the blades up to 14 cm. long and 7 cm. wide; flowers on short slender-bracted basal branches, rarely at the summit of the stem; calyx strongly curved, 1-1.5 cm. long, deep purple to brownish, the broad flaring limb obtusely three-lobed; capsule ellipsoid to subglobose, 0.8-1.3 cm. long; seeds obovoid, 4-5 mm. long.

The Virginia Snakeroot grows from Florida to Texas, northward to southwestern Connecticut, southeastern New York, Ohio, Indiana, southern Illinois, central Missouri and southeastern Kansas. It is found scattered throughout Kentucky, as noted on map 3. It grows in rich and often calcareous woods; very frequently in low woods.

Representative specimens from Kentucky: Bath Co.: Dry woodland, Salt Lick. May 27, 1903. (US-966238); woods, Rt. US 60, 2 mi. W of Salt Lick, near The Knobs. Aug. 21, 1961. Reed 52943; Carter Co.: Cascade Caves, E of Tygarts River. July 4, 1937. L.B.Smith et al, 3474. (US-1717205); Edmonson Co.: Mill Creek, forest on stream slope, Mammoth Cave Nat. Park. June 2, 1949. Henry W. Lix 633. (US-2030565); Estill Co.: Irvine. May 17, 1903. (US-966259); Harlan Co.: Pine Mt. Aug. 1893. T.H.Kearney, Jr. 84. (US-796879); Nicholas Co.: Blue Lick State Park, Rt. US 68 at Rt. Ky 165. Aug. 15, 1961. Reed 52296; woods along Licking River at Blue Licks, Rt. 68. Aug. 15, 1961. Reed 52315; Wayne Co.: woods, 3-4 mi. E of Monticello. June 1962. John Simpson #4. (Reed Herb. 43022); Webster Co.: Swampy woods, Rt. 132, near Clay, on Lynn Fork Creek. June 18, 1962. C.F.Reed; Martin Co.: Woods in ravine, at Lovely. Aug. 1965. C.F.Reed & Rufus Reed. Braun (1943, p. 50) gives the following counties: Allen, Barren, Bell, Carter, Clay, Edmonson, Fleming, Hardin, Harlan, Hart, Jefferson, Kenton, Larue, Lee, Letcher, Lewis, Lincoln, Magoffin, McCracken, Monroe, Nelson, Nicholas, Owen, Perry, Pike, Pulaski, Rowan, Russell, Spencer, Taylor, Todd, Trigg, Wayne, Whitley. It is known in 40 of the 120 counties in the state.

3. HEXASTYLIS Raf., Neogenyt., p. 3. 1825; Blomquist, Brittonia, 8(4): 255-281. 1957; Reed, Phytologia, 12(6): 321-330. 1965.

Syn.: Asarum sect. Ceratasarum A.Br., Index Sem. Horti Berol., App., p. 12. 1864.

Herbs with rhizome at or near surface of ground; leaves essentially glabrous, coriaceous, and persisting more than one season, one leaf borne each season; leaves reniform, cordate-ovate, subhastate or triangular-cordate, long-petioled, evergreen, dark green, often mottled with white between or along the veins; calyces glabrous on the outside, lobes of the calyx not attenuated; vestiges of petals absent; stamens with very short filaments or the anthers sessile; anther-connective at most extending in a short blunt appendage; ovary superior to partly inferior, the styles separate, extending above the extrorse stigmas.

Only two species of this genus have been recorded from Kentucky, namely, H. arifolia var. ruthii and H. virginica.

3a. HEXASTYLIS ARIFOLIA var. RUTHII (Ashe) Blomquist, Brittonia, 8(4): 268. 1957; Reed, Phytologia, 12(6): 330. 1965. Map 4.

Syn.: Asarum ruthii Ashe, Jour. Elisha Mitchell Soc., 14: 35-36. 1897; Hexastylis ruthii (Ashe) Small, Flora Southeastern United States, p. 1137. 1903.

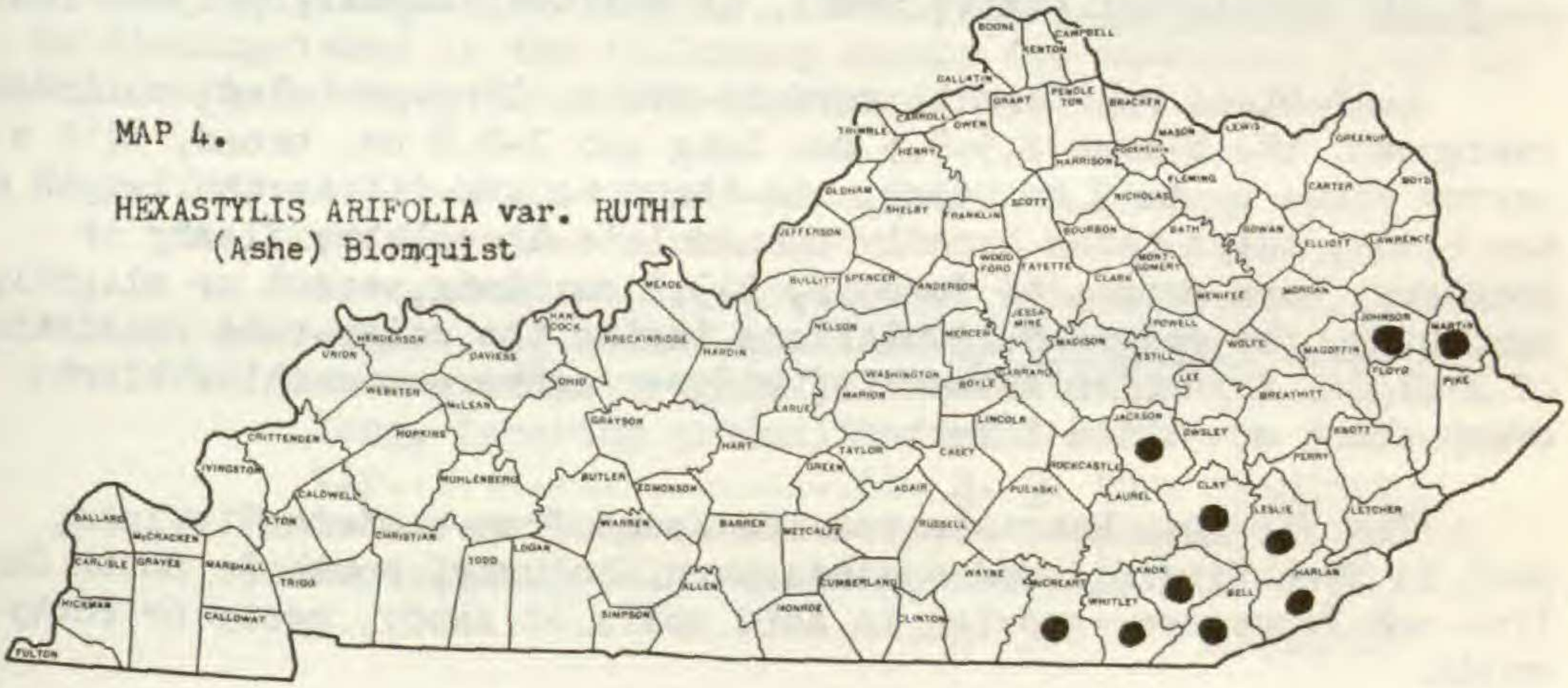
Leaf-blade deltoid, subhastate or triangular-cordate, up to 1.6 dm. long and 1.5 dm. broad, the broad sinus up to 5 cm. deep, one-third to two-fifths the length of the blade; calyx slenderly ovoid, 1-2 cm. long, gradually tapering from the base of the scarcely constricted summit, the erect lobes only 1-3 mm. long and forming a short narrowed beak; anther-connective prolonged to a point.

The Arum-leaved Ginger or Heartleaf is found in southwestern Virginia and southeastern Kentucky, south in the mountains to Alabama, growing in mesophytic woods.

Representative specimens from Kentucky: Bell Co.: Pinewoods, Pine Mt. State Park. April 9, 1949. Priscilla Gibson (Reed 14625); Harlan Co.: Pine Mt. Stone. May 1919. (DUKE; PA); woods near Baxter, Pine Mt. July 5, 1947. Reed 8156; Jackson Co.: Woods just W of Elias, Rt. 30. Aug. 28, 1959. Reed 45369; woods just NE of Tyner. April 10, 1948. Reed 11084; Johnson Co.: Woods, Toms Creek near Nippa. Aug. 10, 1965. C.F.Reed (71391) and Rufus Reed; Knox Co.: Woods near Davis Bend, 3 mi. S of Barbourville. April 26, 1947. Reed 6621 and 6657; Sampson Hill near Barbourville. April 25, 1947. Reed 6584 and Jan. 9, 1947. Reed 6468; hillsides west of Barbourville. Jan. 11, 1947. Reed 6477; woods, Dishmans Springs. 7 mi. NW of Barbourville. June 1, 1947. Reed 7190; woods along Indian Creek near Barbourville. May 17, 1947. Reed 6810; Indian Creek. April 27, 1947. Reed 6637; Leslie Co.: Hemlock woods, W of Bledsoe. July 5, 1947. Reed 8138; Martin Co.: Woods, Lovely. June 20, 1965. Rufus M. Reed (Reed Herb. No. 55357); Introduced from Johnson Co.; Lovely. Aug. 10, 1965. Reed 71399; McCreary Co.: S of Pine Knot. Lucy Braun. June 14, 1935 (GH); wet sandstone woods along South Fork of Cumberland River, near Yamacraw. Dec. 30, 1955. Reed 36904; woods alove Cumberland Falls. Aug. 9, 1949. Reed 16324; Wherry's Bog, S of Strunk, Rt. 27. Aug. 10, 1950. Reed 21021; woods near Lygodium palmatum on Jenny's Creek, between Sand Hill and Whitley City. Oct. 23, 1949. Reed 18103; ravine at Yamacraw. April 15, 1950. Reed 18547; Whitley Co.: Cumberland Falls. Lucy Braun. June 25, 1936. (GH); rockhouses, Trail No. 2, Cumberland Falls State Park. July 2, 1950. Reed 20309. Braun (1943, p. 50) lists this species from the following counties: Bell, Clay, Johnson, Leslie, McCreary and Whitley.

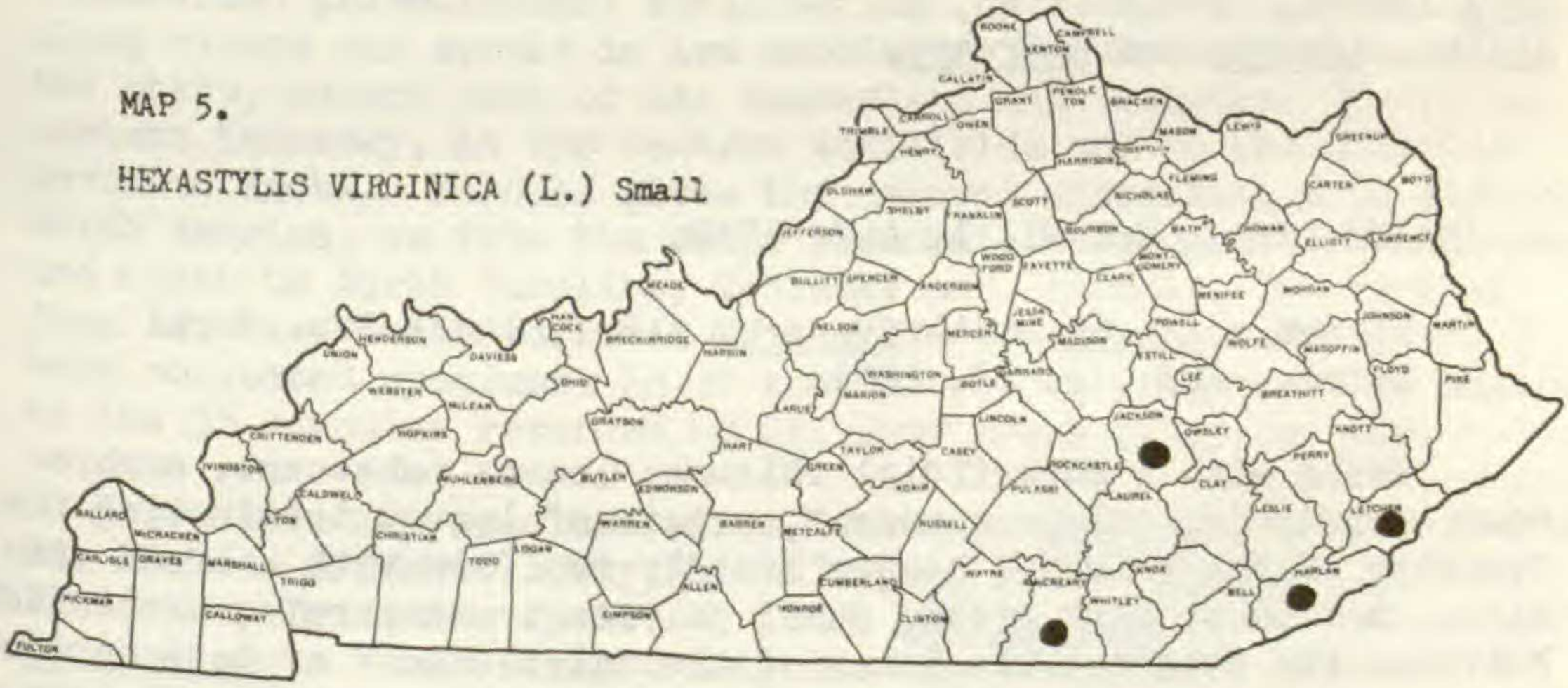
MAP 4.

HEXASTYLIS ARIFOLIA var. RUTHII
(Ashe) Blomquist



MAP 5.

HEXASTYLIS VIRGINICA (L.) Small



3b. HEXASTYLIS VIRGINICA (L.) Small, Flora Southeastern United States, p. 1131. 1903; Blomquist, Brittonia, 8(4): 277. 1957; Reed, Phytologia, 12(6): 323-325. 1965. Map 5.

Syn.: Asarum virginicum L., Sp. Pl., p. 442. 1753; Heterotropa virginica (L.) A.Gray, Lond. Jour. Bot., 1: 225. 1842; Asarum menningeri Ashe, Jour. Elisha Mitchell Soc., 14: 35. 1897; Hexastylis menningeri (Ashe) Small, in Britton, Manual, p. 348. 1901.

Leaf-blade reniform to cordate-ovate, long-petioled, coriaceous, evergreen, the blades 2.5–9.5 cm. long and 2–8.5 cm. broad, with a narrow sinus up to 3 cm. deep, one-third to two-fifths the length of the blade; calyx-lobes broadly campanulate-urceolate, fleshy or leathery, dark purple to fuscous, 3–3.5 mm. long, erect or slightly spreading, the ridged-reticulations inside the calyx-tube consisting of a close, irregular network of ridges; anther-connective blunt; ovary about one-third inferior.

The Virginia Heart-leaves are found from eastern Virginia, west to West Virginia and southeastern Kentucky, south to South Carolina and Tennessee, growing in acid soils of sandy, peaty or rocky woods.

Representative specimens from Kentucky: Harlan Co.: Woods, Rt. 66 on Black Mt. nr. the Virginia line (Lee Co.). June 21, 1947. Reed 7735A; Jackson Co.: Woods just NE of Tyner. April 10, 1948. Reed 11085A. Braun (1943, p. 50) lists the following counties: Harlan, Letcher and McCreary.

4. ASARUM Linn., Sp. Pl. 1: 442. 1753.

Syn.: Asarum sect. Euasarum A.Br., Index Sem. Horti Berol., App., p. 12. 1861.

Herbs with a superficial rhizome; leaves pubescent, membranous, persisting only one season, a pair of leaves terminating the branches of the rhizome; leaves broadly reniform with a broad open sinus, medium to dark green, dull; calyces brown-purple, campanulate, hairy on the outside, the lobes of the calyces more or less attenuated; vestiges of the petals sometimes present; stamens with long filaments; anther-connective extending in a long, pointed appendage; ovary wholly inferior, the styles united at the apex, the stigmas terminal on the spreading lobes.

4a. ASARUM CANADENSE Linn., Sp. Pl., 1: 442. 1753.

Plants soft-pubescent, especially along the petioles and on the outside of the calyces, with an elongating, creeping rhizome,

terminating in a pair of deciduous broadly reniform leaves; leaf-blade dull green, with a broad open sinus, often abruptly short- acuminate, or suborbicular or round-ovate with a closed sinus and broadly round-tipped, 0.6-1.8 dm. broad when mature; calyx campanulate, brown-purple on the inside, the calyx-lobes wholly adnate to the ovary, the tips inflexed in the bud; filaments slender, much longer than the short anthers; style barely 6-lobed at the summit, with 6 radiating thick stigmas. Freely integrating varieties may be distinguished in the following manner for specimens found in Kentucky, based on Fernald's distinctions.

1. Calyx-lobes with caudate tips 0.5-2 cm. long.
   2. Lobes deltoid- to oblong-ovate, 1-2.5 cm. long, narrowed to a slender tip 0.5-1.5 cm. long.....
   .....4a. A. canadense (typical).
   2. Lobes narrowly to broadly lance-attenuate, 1.5-2.5 cm. long, tapering gradually from the base to a slender tip.....4b. A. c. var. acuminatum.
1. Calyx-lobes scarcely caudate-tipped or merely mucronate; lobes deltoid, 5-12 mm. long, abruptly reflexed.....
   .....4c. A. c. var. reflexum.

4a. ASARUM CANADENSE Linn. (Typical). Map 6.

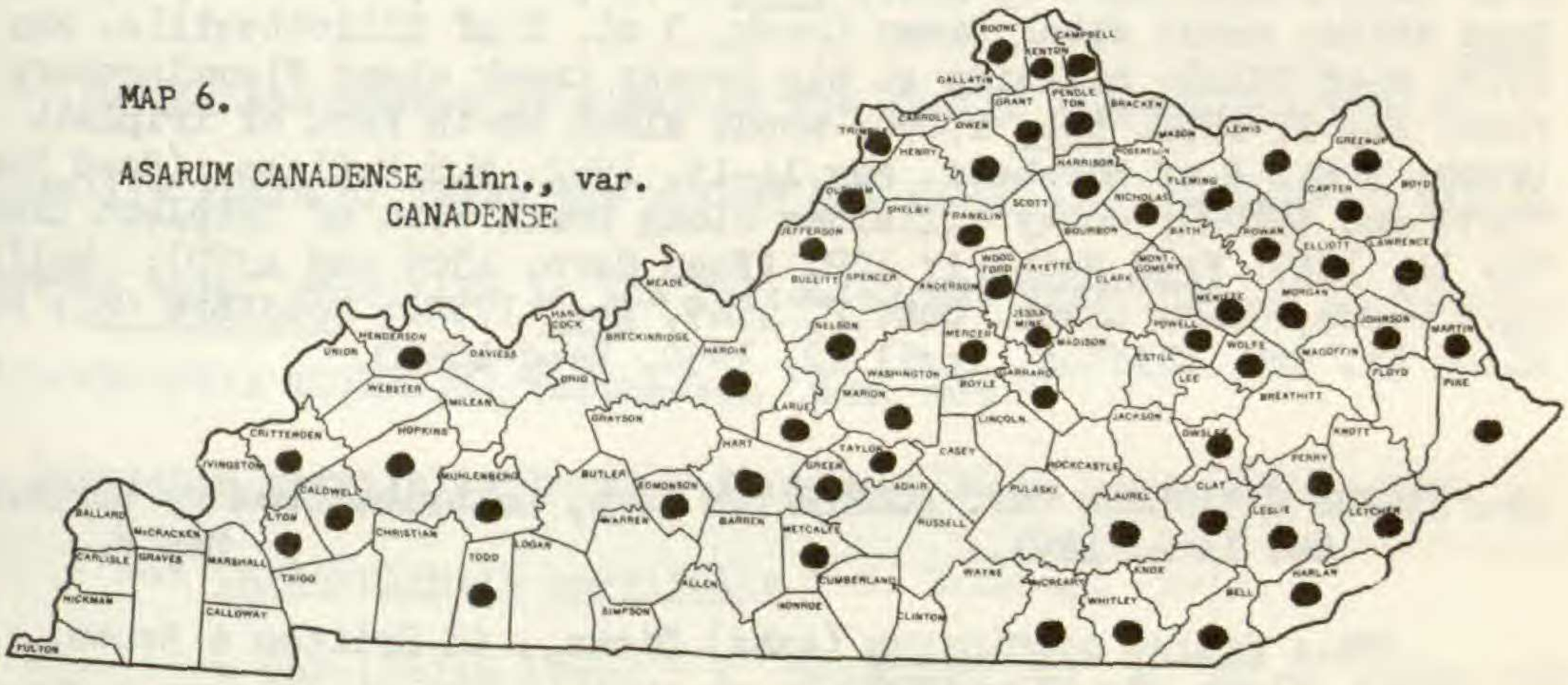
The typical form of the Wild Ginger is the most common form to be found in Kentucky. It grown best on rocky mesophytic slopes, along rivers and creeks in low woodlands, practically throughout the state, except west of the Cumberland and Tennessee Rivers in western Kentucky, in the western coalfields and in the Silurian-Devonian Knobs. Fernald gives the natural distribution in eastern North America, as from the Gaspe Peninsula and Quebec to Minnesota, and south to North Carolina, Kentucky and Illinois. The typical form has been recorded in 58 of the 120 counties in the state. I have collected specimens in 39 counties, 23 of which are in addition to the 35 counties recorded by Dr. Lucy Braun (1943, p. 50).

Representative specimens from Kentucky: Bell Co.: Deep ravine on Rt. 21 near Crockett. July 2, 1947. Reed 8071; Caldwell Co.: Mill Bluff near Fredonia. April 17, 1949. Dottie King (Reed Herb. 55180); Campbell Co.: Woods along creek, Rt. 10, 7 mi. SE of Alexandria. Aug. 24, 1959. Reed 44699; Carter Co.: Woods, 1 mi. E of Lawton. April 24, 1949. Reed 14731; woods along road to Carter City, Carter Caves. May 28, 1950. Reed 19556; hillsides near Carter Caves. April 22, 1948. Reed 12139 and 12162; woods along Tygarts River. May 12, 1949. Reed; limestone woods near Tygarts River, Carter Caves. April 9, 1950.18375; Crittenden Co.: Woods on Brantley Creek near Hood. April 30, 1950. Reed 19047; Edmondson Co.: Green River Bluff Trail

Mammoth Cave Nat. Park. April 10, 1947. H.W.Lix 137. (US-1970416). Note by Carolyn Stone -- "varying toward var. reflexum"; Elliott Co.: Damp hillsides at Laurel Bridge near Sandy Hook. April 20, 1948. Reed 12219; rocky hillsides, Blaze. April 30, 1949. Reed 14778; Franklin Co.: Rocky hillsides, 1 mi. E of Alton. April 24, 1948. Reed 12332; Garrard Co.: Woods along Kentucky River, Rt. 27, N of Bryantsville. April 22, 1950. Reed 42486; Grant Co.: Woods at Head of Rays Fork, Rt. 330, 1.5 mi. W of Corinth. June 21, 1962. Reed 57145; Green Co.: Wooded ravine along Little Bird Creek, Rt. 61 near Allendale. Aug. 26, 1959. Reed 45106; woods, Rt. 61, near Green River. April 15, 1950. Reed 18481; Hardin Co.: Limestone woods near Arch. April 30, 1950. Reed 18980; Harlan Co.: Woods near Baxter, Pine Mt. July 5, 1947. Reed 8150; shaded wet ledges near Coxton. May 4, 1947. Reed 6697B and 6697A; Harrison Co.: Wooded slopes along Licking River, N of Cynthiana. Aug. 15, 1961. Reed 52347; Hopkins Co.: Hillsides near Nortonville. April 28, 1950. Reed 18890; Jefferson Co.: Hillside along Harrods Creek. April 1949. Blanche Rose. (Reed Herb.55172); Jessamine Co.: Limestone ledges along Kentucky River at High Bridge. April 17, 1949. Reed 14662; limestone woods along Jessamine Creek, Christmans Cave. April 3, 1949. Reed 14589; damp woods at High Bridge. April 24, 1948. Reed 12392; Johnson Co.: At cold spring, Drake Creek. April 22, 1950. Earl Skaggs 138. (Reed Herb. 14383); woods near Flat Gap. May 1, 1948. Reed 12467; woods, Toms Creek near Nippa. Aug. 10, 1965. Reed 71394; Larue Co.: Woods along Rolling Fork River, Rt. 84 just W of Larue-Nelson Co. line. April 23, 1950. Reed 18704; Laurel Co.: Damp woods along Rockcastle River at Rt. 80. July 11, 1954. Reed 33592; Lawrence Co.: Woods, Rt. 32 between Adorn and Busseyville. May 7, 1950. Reed 19495; woods 5 mi. S of Blaine. Oct. 15, 1949. Reed 17738; woods along Rt. 32 near Lawrence-Elliott Co. line. May 7, 1950. Reed 19532; Lewis Co.: Silurian limestone near Lock 32 between Vanceburg and Concord, along Ohio River. Aug. 5, 1950. Reed 21512; hillside near Stricklett. April 1949. Blanche Rose. (Reed Herb. 55173); Lyon Co.: Wooded slopes, Kuttawa Springs. Aug. 11,1949. Reed 16138; same loc., April 30, 1950. Reed 19070 and 19067; Marion Co.: Limestone bluffs, Rt. 84, W of Raywick near Prather Creek. April 23, 1950. Reed 18685; Martin Co.: Woods, Lovely. June 20, 1965. Rufus M. Reed. (Reed Herb. 55355 and 55356); McCreary Co.: Deep ravine, Yamacraw. April 15, 1950. Reed 18574; Menifee Co.: Hillsides along Ratliff Creek, 2 mi. W of Scranton. April 21, 1949. Reed 14677; wooded hillside along Rt. 77, Red River Valley. Sept. 25, 1949. Reed 17438; Mercer Co.: Woods along Kentucky River, Rt. 68, near Shakertown. April 22, 1950. Reed 42492; Metcalfe Co.: Woods. June 28, 1947. Reed 7906; Morgan Co.: Deep woods, Grassy Creek. May 14, 1950. Ralph Perkins 13. (Reed Herb. 55198); Muhlenburg Co.: Woods W of Rockport. April 28, 1950. Reed 18912; Nelson Co.: Damp hillsides, ravines by Buffalo Creek, Rt. 62, S of Bardstown. May 14, 1950. Reed 20124; Owsley Co.: Woods, 2 mi. E of Green Hall P.O., Rt. 30 at Rt. 846. Aug. 28, 1959. Reed 45402; Pendleton Co.: Woods just E of Falmouth. July 16, 1954. Reed 33843; Pike Co.: Shady hillsides just N of Pikeville. July 10, 1954. Reed 33664; Robertson Co.: Woods 9 mi. E

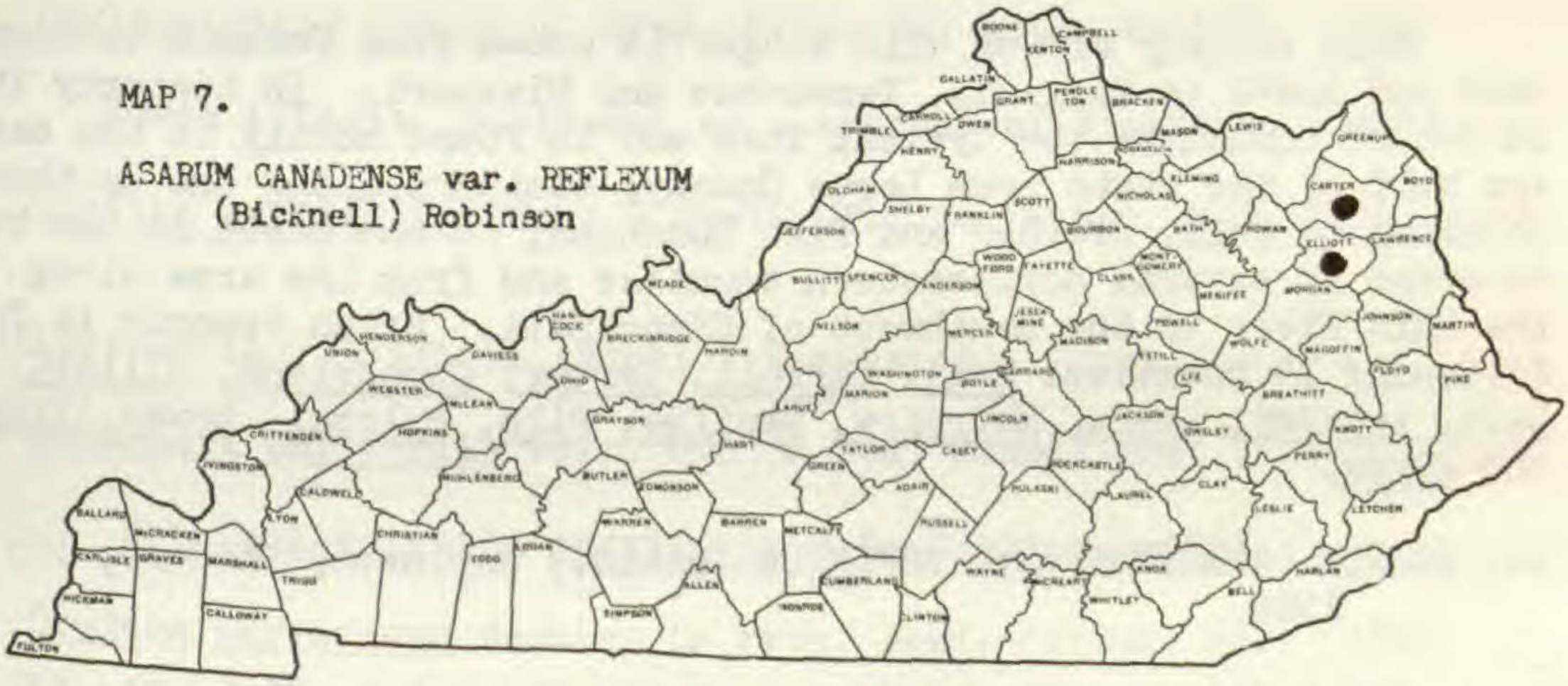
MAP 6.

ASARUM CANADENSE Linn., var.
CANADENSE



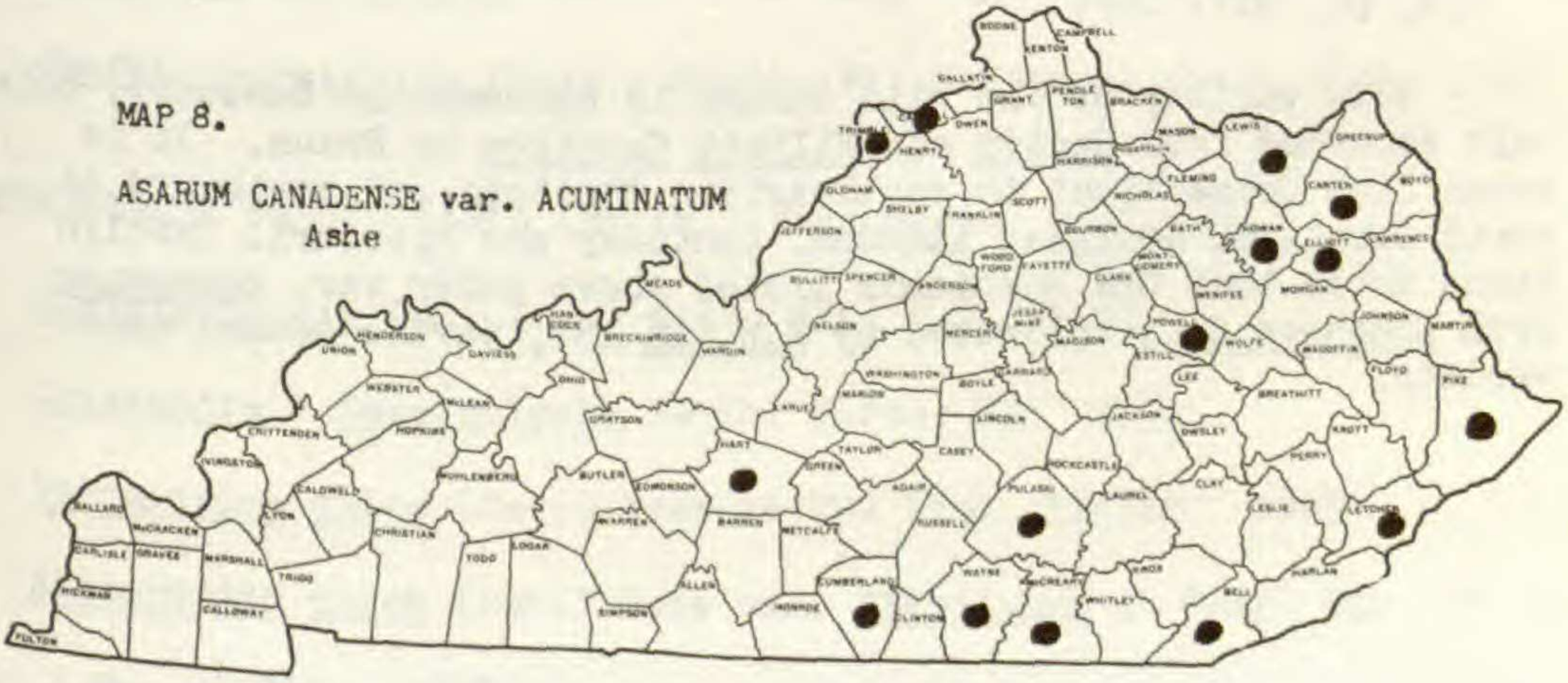
MAP 7.

ASARUM CANADENSE var. REFLEXUM
(Bicknell) Robinson



MAP 8.

ASARUM CANADENSE var. ACUMINATUM
Ashe



of Blue Licks. May 6, 1950. Reed 19907; Trimble Co.: Woods, limestone, along Ohio River, 2 mi. W of Milton. Aug. 25, 1959. Reed 44854; Rowan Co.: Woods, Big Perry Mt. May 7, 1948. Reed 12634; ravine, 1 mi. S of Clearfield. Nov. 7, 1947. Reed 10770; woods, Hamm. May 3, 1950. Reed 19156; woods along Caney Creek, 3 mi. E of Elliottsville. May 4, 1950. Reed 19122; hillside at Big Brushy Creek along Flemmingsburg Road. May 2, 1950. Reed 19090; woods along North Fork of Triplett Creek, 3 mi. N of Morehead. May 14-15, 1942. M.S.C.Class. (Reed Herb. 55177 and 55178); rocky hillsides along North Fork of Triplett Creek. May 14, 1950. Fred Netherly 109. (Reed Herb. 4369 and 4370); Wolfe Co.: Woods, Glady Creek. Oct. 2, 1949. Reed 17584; Woodford Co.: Woods along Rt. 326, Clifton. April 22, 1950. Reed 18830.

4b. ASARUM CANADENSE var. ACUMINATUM Ashe, Contrib. from My Herbarium, No. 1: 2. 1897. Map 8.

Syn.: Asarum acuminatum (Ashe) Bickn., in Britton & Brown, Illus. Flora, 3: 513. 1898.

This variety of our Wild Ginger is known from Vermont to Minnesota and south to Virginia, Tennessee and Missouri. In Kentucky it is not so common as the typical form and is found mostly in the eastern half of the state from Larue County, eastward along the southern counties to Bell, Letcher and Pike Counties; to the north it has been recorded in several northeastern counties and from the area along the Ohio River to the southwest of Cinncinati. Braun records it from following 15 counties: Bell, Carroll, Carter, Cumberland, Elliott, Hart, Letcher, Lewis, McCreary, Menifee, Pike, Pulaski, Rowan, Trimble and Wayne.

4c. ASARUM CANADENSE var. REFLEXUM (Bickn.) Robinson, Rhodora, 10: 32. 1908.

Syn.: Asarum reflexum Bickn., Bull. Torr. Bot. Club, 24: 531, 533, pl. 317. 1897.

This variety of the Wild Ginger is uncommon in Kentucky, being only recorded from Carter and Elliott Counties by Braun. It is known from Connecticut to southeastern Manitoba and southward to North Carolina, Georgia, Alabama, Kentucky and Missouri. Carolyn Stone notes that the specimens listed above under var. canadense from Edmonson Co., collected by H.W.Lix 137, varies toward this variety.